UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,905	01/16/2004	Shihong Lao	15115.103001\	7059

7590   04/23/2008

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EXAMINER
KRASNIC, BERNARD

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
04/23/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/758,905	LAO ET AL.
Office Action Summary	Examiner	Art Unit	
	BERNARD KRASNIC	2624	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>05 February 2008</u>.

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-3,5-15 and 17-26* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-3,5-15 and 17-26* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All b) ☐ Some * c) ☐ None of:

      1. ☒ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   The Request for Continued Examination filed 2/05/2008 have been entered and made of record.

2.   The Applicant has canceled claim(s) 4 and 16.

3.   The application has pending claim(s) 1-3, 5-15, and 17-26.

4.   In response to the Request for Continued Examination filed on 2/05/2008:

The "Objections to the specification" have been entered and therefore the Examiner withdraws the objections to the specification.

The "Objections to the claims" have been entered and therefore the Examiner withdraws the objections to the claims.

The "Claim rejections under 35 U.S.C. 112, second paragraph" have been entered and therefore the Examiner withdraws the rejections under 35 U.S.C. 112, second paragraph.

The "Claim rejections under 35 U.S.C. 101" have been entered and therefore the Examiner withdraws the rejections under 35 U.S.C. 101.

Regarding Claim 26 [lines 23-25], the Applicant has inadvertently forgotten to underline [underline to indicate current amended claim limitations] the amended limitation of "wherein the step of extracting a face image includes a step of specifying a

size of the face image to be extracted, based on a result of recognition by the distance

recognition step". The Examiner has recognized this minor informality for the record.

5.   Applicant's arguments with respect to claim(s) 1-3, 5-15, and 17-26 have been

considered but are moot in view of the new ground(s) of rejection because of the

Request for Continued Examination (RCE).

6.   Applicant's arguments, see page 15 [starting at paragraph "The Examiner

acknowledges …] through page 16 [ending of paragraph "Thus, it would be clear to one

skilled …], filed 2/05/2008, with respect to the rejection(s) of claim(s) 1-3, 5-15, and 17-

26 under 35 U.S.C 103(a) have been fully considered and are persuasive. Therefore,

the rejection has been withdrawn. However, upon further consideration, a new

ground(s) of rejection is made in view of the newly found prior art reference Kojima et al

(US 5,638,136). Kojima discloses the amended limitations of a distance recognition

part / calculate object distance L for recognizing a distance / object distance L between

an object / object and the image pickup unit / lens [see Kojima, Figs. 109, 110 and 113,

col. 30, lines 37-39], wherein the face image extraction part / detection of human face

area includes a part for specifying a size of the face image / detect width and size of a

human face to be extracted, based on a result of recognition by the distance recognition

part / based on the object distance L [see Kojima, Figs. 109, 110 and 113, col. 30, lines

37-39, col. 42, lines 53-65]. Therefore it would have been obvious to one of ordinary

skill in the art at the time the invention was made to modify Center's device using

Kojima's teachings by including the distance recognition part to Center's face image

extraction part for improving the identification of a human face area (see Kojima, col. 42,

lines 50-51). Therefore, the current claims are still not in condition for allowance

because they are still not patentably distinct over the prior art references.

Claim Objections

7.   Claims 1, 13, and 23-26 are objected to because of the following informalities:

Claims 1 and 23, line 21, claim 13, line 31, claim 24, line 23, claim 25, line 19, claim 26,

line 22 respectively: "a distance between an object and the image pickup unit" should be

-- a distance between the object and the image pickup unit --.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

9.   Claims 1-3, 5-12, 23, and 25 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Center (US 2002/0113862 A1, as applied in previous Office Acton) in

view of Kojima et al (US 5,638,136).

Re Claim 1: Center discloses an image pickup device / videoconferencing system (see

paragraph [0002], [0027], [0018], abstract) comprising an image pickup unit / camera

including a lens / lens of camera and an image sensor / camera sensors such as zoom
and focus sensors, and a control unit / computer system connected to camera for
processing an image picked up by the image pickup unit and storing a processed image
in one of an internal memory / memory of camera and computer system RAM or a
predetermined storage medium (see Fig. 1, paragraphs [0018], [0003], and [0027], the
computer is connected to the camera and they interact in real time since this is video
conferencing), the control unit comprising a face image extraction part / locate face for
extracting a face image contained in the image picked up by the image pickup unit (see
Fig. 1, paragraphs [0018] and [0019]); an inference part / evaluate image quality for
executing a process of inferring / evaluating attributes / information or characteristics of
a person constituting an object based on feature amounts / color or motion analysis in
an image area including the face image extracted (see paragraphs [0020], [0025], and
[0004]); a parameter selecting part for selecting a set of parameters / skin color tones or
templates from a table based on the attributes / information or characteristics or range
of appearance of a person inferred by the inference part, wherein the table stores a
plurality of sets of parameters that are respectively optimized based on each attribute of
a person {see paragraphs [0028] and [0047], Center teaches (for color analysis) a
lookup table which is trained [optimal over the default table] for a particular person
[regular user] having the parameters based on attributes of a person [skin color tones
for the range of the persons appearance], Center also teaches (for template matching
method) selecting the templates [parameters] from a number of templates [table]
[optimal because Center tries to achieve the greater detection accuracy] tuned to

recognize a particular person using the range of appearance or a particular user
[parameters based on attributes of a particular person]}; an image pickup conditions
adjusting part / adjust and control the camera for adjusting image pickup conditions /
brightness, contrast and color balance based on the selected parameters by the
parameter selecting part (see Fig. 1, paragraph [0020], [0028], [0047]); an information
processing part / processing pass for storing in selected one of the memory and the
storage medium / computer system RAM the image obtained / current frame or adjusted
frame under the image pickup conditions adjusted by the image pickup conditions
adjusting part (see paragraphs [0020], [0026], and [0027], the computer stores a current
frame and does the evaluation of this information and then uses and produces an
adjustment based on the evaluation and stores this adjustment frame).

Although Center is silent in teaching the storing of the selected parameters in
one of an internal memory and a predetermined storage medium, it would have been
obvious to one of ordinary skill in the art at the time the invention was made because
the selected templates need to be stored in the internal memory in order to be accessed
and used later on for Centers face recognition tracking system.

However Center fails to disclose or fairly suggest a distance recognition part.

Kojima discloses a distance recognition part / calculate object distance L for
recognizing a distance / object distance L between an object / object and the image
pickup unit / lens [see Kojima, Figs. 109, 110 and 113, col. 30, lines 37-39], wherein the
face image extraction part / detection of human face area includes a part for specifying
a size of the face image / detect width and size of a human face to be extracted, based

on a result of recognition by the distance recognition part / based on the object distance
L [see Kojima, Figs. 109, 110 and 113, col. 30, lines 37-39, col. 42, lines 53-65].

Therefore it would have been obvious to one of ordinary skill in the art at the time
the invention was made to modify Center's device using Kojima's teachings by including
the distance recognition part to Center's face image extraction part for improving the
identification of a human face area (see Kojima, col. 42, lines 50-51).

Re Claim 2: Center further discloses an inference part / evaluate image quality for
executing the inference / evaluation of at least one of the race, age and sex as the
attributes / range of appearance (see [0028], lines 4-9, [0048], the evaluation includes
any combination of the template matching, motion detection, background differencing,
and color analysis, in this case the template matching searches for a face using
templates that represent the range of appearance of the different types of faces which
are known as eigenfaces and these eigenfaces typically use race and sex).

Re Claim 3: Center further discloses wherein the information processing part /
processing pass includes a part for producing a link information / hypothesis containing
a position / location of the face image extracted by the face image extraction part /
locate face and the inference information / evaluation information obtained by the
inference process / evaluation executed by the inference part, and wherein the link
information / hypothesis is stored in selected one of the memory and the storage

medium / computer system RAM together with the image / current frame picked up by
the image pickup unit (see paragraph [0048], lines 5-9).

Re Claim 5: Center further discloses wherein the control unit / computer system
includes a focal length adjusting part for adjusting the focal length of a lens of the image
pickup unit / camera in accordance with the result of extraction by the face image
extraction part / locate face (see paragraph [0004], lines 5-8, once the face is extracted
and detected and the computer system adjusts the camera to automatically focus based
on the detection and evaluation results).

Re Claim 6: Center further discloses comprising a first operating unit / results Pyramid
of visual detector for designating a range / location and size of extracting a face image,
wherein the face image extraction part / locate face includes a part for limiting the face
image extraction area in the image picked up by the image pickup unit / camera in
accordance with the designating operation of the first operating unit (see paragraphs
[0050] and [0004], with the range specified by the visual detector the camera is adjusted
by focusing and zooming to the correct location and size of the face).

Re Claim 7: Center further discloses comprising a first operating unit / color analysis for
designating a deletion / remove and substitute of the result / skin probability of
extracting a predetermined part / area of skin of the face image extracted, wherein the
face image extraction part / locate face includes a part for updating the result of
extracting the face image in accordance with the designating operation of the first

operating unit (see paragraphs [0004], [0046], and [0047], an update of the face area

parameters of the color analysis is accomplished by the deletion of skin probability in

the lookup table followed by the addition or substitution from the user and it is these

parameters which update and adjust the brightness, contrast and color balance of the

image).

Re Claim 8: Center further discloses comprising a first operating unit for performing an

operation of correcting / adjusting the inference information / information or

characteristics of a person obtained by the inference process of the inference part /

evaluate image quality, wherein the information processing part / processing pass

includes a part for correcting the inference information in accordance with the correcting

operation of the third operating unit (see paragraphs [0026] and [0020], abstract, the

processing passes which are the template matching, motion detection, background

differencing, and color analysis adjust the information of the face, paragraphs [0046]

and [0047], the color analysis pass looks up and adjusts the skin area table values U

and V for proper probability calculations, the U and V values are related to the color

information as seen in [0027] lines 17-19).

Re Claim 9: Center further discloses comprising a first operating unit / camera

parameter unit for correcting the image pickup conditions / brightness, contrast and

color balance adjusted by the image pickup conditions adjusting part / adjust and control

the camera, wherein the image pickup conditions adjusting part includes a part for

readjusting the image pickup conditions in accordance with the correcting operation of the first operating unit (see Fig. 1, paragraph [0004], lines 5-13, paragraph [0020]).

Re Claim 10: Center further discloses the information processing part / processing pass includes a part for determining a direction / location of the face of an object in the image based on the result of extraction of the image stored in selected one of the memory and the storage medium by the face image extraction part / locate face, and a part for rotating / tilt movable camera the image in such a manner that the face direction conforms with a predetermined reference direction in the case where the determined face direction is different from the reference direction (see [0024], the wide-angle movable camera may tilt).

Although Center doesn't specifically recite the limitation of determining the direction of the face and conforming the determined direction with the reference direction, it would be obvious to one of ordinary skill in the art at the time the invention was made to include this limitation in the processing pass in order to actually have Center's wide-angle movable camera tilt in the appropriate direction to actually optimize the face location detector (Center, paragraph [0024]).

Re Claim 11: Center further discloses comprising a feature amount / skin color probability storage part for storing the feature amount of the face image already extracted, wherein the face image extraction part includes a specified image extraction part / locate face for extracting an image area including the feature amount of the

specified face image stored in the feature amount storage part from the image picked

up by the image pickup unit (see paragraph [0046], lines 22-27, a skin color probability

is stored in colorPyramid after the face is extracted from the current incoming image

and after it goes through the color analysis processing pass).

Re Claim 12: Center further discloses comprising an object storage part / computer

system RAM for storing the feature amount / skin tone color probability of the face

image of a specified object / user or users, wherein the information processing part /

processing pass compares / evaluates for modification the feature amount / skin tone

color probability of the face image extracted by the face image extraction part / locate

face with the feature amount / skin color probability stored in the object storage part /

computer system RAM, so that in the case where the comparing process shows that the

extracted face image is that of the specified object, a link information / hypothesis

containing the inference information / information or characteristics of a person obtained

by the inference process of the inference part / evaluate image quality and the

information / U and V values for identifying the specified object / current face image is

produced and stored in selected one of the memory and the storage medium / computer

system RAM together with the image picked up / current image by the image pickup unit

(see Fig. 1, [0046], lines 22-27, [0047], lines 1-5, [0048], lines 5-9, [0050]).

As to claims 23 and 25, the claims are the corresponding computer-readable medium and method claims to system claim 1 respectively. The discussions are addressed with regard to claim 1.

10.   Claims 13-15, 17-22, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Center, in view of Soriano ("Making saturated facial images useful again", a Non-patent literature reference supplied by the Applicant, as applied in previous Office Action) and Kojima.

Re Claim 13: Center discloses an image pickup device / videoconferencing system (see paragraph [0002], [0027], [0018], abstract) comprising an image pickup unit / camera including a lens / lens of a camera and an image sensor / camera sensors such as zoom and focus sensors; a control unit / computer system connected to the camera for processing an image picked up by the image pickup unit and storing processed image in selected one of an internal memory / memory of camera or computer system RAM and a predetermined storage medium (see Fig. 1, paragraphs [0018], [0003], and [0027], the computer is connected to the camera and they interact in real time since this is video conferencing), the control unit comprising a registration part / skin tone color probability lookup table for holding the feature amount / skin tone color probability of a face image of each of a predetermined number of objects / users (see [0047], lines 1-5, a predetermined number of objects are a multiple number of users) and information required for adjusting the optimum image pickup conditions / optimum brightness,

contrast and color balancing in correspondence with identification information / skin tone color unique to the object, a face image extraction part / locate face for extracting a face image contained in the image picked up by the image pickup unit (see Fig. 1paragraphs [0018] and [0019]); an inference part / evaluate image quality for inferring / evaluating attributes / information or characteristics of a person by comparing the feature amount / color or motion analysis of the face image extracted by the face image extraction part with the information registered in the registration part (see paragraphs [0020], [0025], and [0004]); a parameter selecting part for selecting a set of parameters / skin color tones and templates from a table based on the attributes / information or characteristics or range of appearance of a person inferred by the inference part, wherein the table stores a plurality of sets of parameters that are respectively optimized based on each attribute of a person {see paragraphs [0028] and [0047], Center teaches (for color analysis) a lookup table which is trained [optimal over the default table] for a particular person [regular user] having the parameters based on attributes of a person [skin color tones for the range of the persons appearance], Center also teaches (for template matching method) selecting the templates [parameters] from a number of templates [table] [optimal because Center tries to achieve the greater detection accuracy] tuned to recognize a particular person using the range of appearance or a particular user [parameters based on attributes of a particular person]}; an image pickup conditions adjusting part / adjust and control the camera for adjusting the image pickup conditions / brightness, contrast and color balance for the image pickup unit based on the selected parameters by the parameter selecting part (see Fig. 1, paragraph [0020], [0028],

[0047]); an information processing part / processing pass for storing in selected one of the memory and the storage medium / computer system RAM the image obtained under the image pickup conditions adjusted by the image pickup conditions adjusting part (see paragraph [0020], [0026], and [0027], the computer stores a current frame and does the evaluation of this information and then uses and produces an adjustment based on the evaluation and stores this adjustment frame).

Although Center is silent in teaching the storing of the selected parameters in the one of an internal memory and a predetermined storage medium, it would have been obvious to one of ordinary skill in the art at the time the invention was made because the selected templates need to be stored in the internal memory in order to be accessed and used later on for Centers face recognition tracking system.

However, Center fails to disclose or fairly suggest specifically that a registration part holds the information required for adjusting the optimum image pickup conditions in correspondence with identification information unique to the object. Also, Center fails to specifically suggest a distance recognition part.

Soriano discloses information / ideal condition value required for adjusting the optimum image pickup conditions / brightness, contrast, and color balancing (Center discloses these pickup conditions) in correspondence with identification information / skin tone color (Center discloses this information) unique to the object (Soriano, Section 2.2 Color Correction by RGB eigenfaces, Section 3.1 Physics-Based Face Database, abstract, lines 6-8, the pickup conditions are adjusted to the ideal condition values to recover color information in facial images taken under non-ideal conditions).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Center's device using Soriano's teachings by including the information required for adjusting the pickup conditions to Center's registration part in order to recover color information in facial images taken under non-ideal conditions (Soriano, abstract, lines 6-8).

However Center, as modified by Soriano, still fails to specifically suggest a distance recognition part.

Kojima discloses a distance recognition part / calculate object distance L for recognizing a distance / object distance L between an object / object and the image pickup unit / lens [see Kojima, Figs. 109, 110 and 113, col. 30, lines 37-39], wherein the face image extraction part / detection of human face area includes a part for specifying a size of the face image / detect width and size of a human face to be extracted, based on a result of recognition by the distance recognition part / based on the object distance L [see Kojima, Figs. 109, 110 and 113, col. 30, lines 37-39, col. 42, lines 53-65].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Center's device, as modified by Soriano, using Kojima's teachings by including the distance recognition part to Center's face image extraction part for improving the identification of a human face area (see Kojima, col. 42, lines 50-51).

As to claim 15, the discussions are addressed with respect to claim 3.

As to claim 17, the discussions are addressed with respect to claim 5.

As to claim 18, the discussions are addressed with respect to claim 6.

As to claim 19, the discussions are addressed with respect to claim 7.

As to claim 20, the discussions are addressed with respect to claim 8.

As to claim 21, the discussions are addressed with respect to claim 9.

As to claim 22, the discussions are addressed with respect to claim 10.

As to claims 24 and 26, the claims are the corresponding computer-readable medium and method claims to system claim 13 respectively. The discussions are addressed with regard to claim 13.

Re Claim 14: Center further discloses the control unit / computer system includes a part / automatic gain control (AGC) for receiving the input of the information required (taught by Soriano above) for adjusting the optimum image pickup conditions / optimum brightness, contrast, and color balancing and the identification information / skin tone color of the object in response to an image pickup operation / processing pass of a predetermined object for registration in the registration part / skin tone color probability lookup table, and storing / computer system RAM the input information in the registration part together with the face image of the object (see [0003]-[0004], [0046]-[0048], and [0050]).

Although Center's AGC is part of the camera and not part of the control unit or computer system, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an AGC type component built into a computer and

controlled by the computer in order for the color correction or adjustment to meet its

highest quality by having the automatic gain control type component be dynamically

adjusted by the computers inputs.

Conclusion

11.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. Terashita et al discloses methods of collecting photometric

image data and determining light exposure by extracting feature image data from an

original image.

12.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Bernard Krasnic whose telephone number is (571) 270-

1357. The examiner can normally be reached on Mon-Thur 8:00am-4:00pm and every

other Friday 8:00am-3:00pm.

       If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

       Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bernard Krasnic
April 15, 2008
/Jingge Wu/
Supervisory Patent Examiner, Art Unit 2624